



# Monument Analytics

A Health Care Consultancy

## 4A. Pregnant Women, New Mothers, and Infants

	Year														
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
<u>1. Prenatal OUD screening</u>															
[1] Number of pregnant women for universal prenatal screening	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026
<u>2. Prenatal and postpartum psychosocial services</u>															
[2] Number of pregnant women with OUD	51	49	47	45	43	41	39	37	36	34	32	31	30	28	27
[3] Number of pregnant women with OUD/new mothers with OUD to receive prenatal psychosocial services	51	49	47	45	43	41	39	37	36	34	32	31	30	28	27
[4] Number of new mothers with OUD to receive postpartum psychosocial services	0	51	100	147	192	235	224	214	204	195	187	178	170	163	155
<u>3. Prenatal and postpartum housing services</u>															
[5] Number of pregnant women with OUD/new mothers with OUD to receive housing services	21	20	19	18	17	16	16	15	14	14	13	12	12	11	11
<u>4. Interventions for infants exposed to opioids in utero</u>															
[6] Number of infants diagnosed with NAS to receive medical care	61	58	56	53	51	49	46	44	42	40	39	37	35	34	32
[7] Number of infants exposed to opioids but not diagnosed with NAS	111	106	102	97	93	89	85	81	77	74	70	67	64	61	59
[8] Number of children eligible for early intervention (age 0-5 years old)	155	148	141	135	129	123	117	112	107	102	98	93	89	85	81
[9] Total number of children eligible for early intervention (age 0-5 years old)	155	302	443	578	707	830	793	757	723	691	660	630	602	575	549
[10] Number of children eligible for special education and psychosocial services (age 6-21 years old)	0	0	0	0	0	0	12	11	11	10	10	9	9	9	8
[11] Total number of children eligible for special education and psychosocial services (age 6-21 years old)	0	0	0	0	0	0	12	23	34	44	54	63	72	81	89
[12] Intervention Population Trend Ratio	0.96	0.91	0.87	0.83	0.79	0.76	0.73	0.69	0.66	0.63	0.60	0.58	0.55	0.53	0.50

ODU Opioid Use Disorder; NAS Neonatal Abstinence Syndrome

Notes	Input	Source(s)
[1] Number of hospital live births in Cabell County	1,026	All women will be eligible for prenatal screening. (1) U.S. Census Bureau, County Population Totals and Components of Change: 2010-2018. <a href="https://www.census.gov/data/datasets/time-series/demo/popest/2010s-counties-total.html">https://www.census.gov/data/datasets/time-series/demo/popest/2010s-counties-total.html</a> . (2) Substance Abuse and Mental Health Services Administration. Clinical Guidance for Treating Pregnant and Parenting Women With Opioid Use Disorder and Their Infants. HHS Publication No. (SMA) 18-5054. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2018.
[2] = [1] * 54 per 1,000 * [12]	54	Number of hospital live births in Cabell County * Prevalence of OUD per 1,000 hospital deliveries
Prevalence of OUD per 1,000 hospital deliveries	52.4	The prevalence of intrauterine substance use exposure (IUSE) in NSDUH Region V, West Virginia was 13.8% in 2017. A study that tested umbilical cords from births in West Virginia found that 38% of umbilical cords with substance use exposure contained traces of opioids. 13.8% * 38% = 52.4 per 1,000 births. (1) Umer A, Loudin S, Maxwell S, Lilly C, Stabler ME, Cottrell L, Hamilton C, Breyel J, Mullins C, John C. Capturing the Statewide Incidence of Neonatal Abstinence Syndrome in Real Time: The West Virginia Experience. Pediatric Research. 2019;85:607-11. (2) Stitely ML, Calhoun B, Maxwell S, Nerhood R, Chaffin D. Prevalence of Drug Use in Pregnant West Virginia Patients. West Virginia Medical Journal. 2010;106:48-53.
[3] = [2]		All pregnant women with OUD/new mothers with OUD should receive prenatal biopsychosocial services for one year, including intensive care coordination and support, given the complex challenges they face. Estimate provided by Dr. Nancy Young.

[4] = [3] in the most recent 5 years (beginning year 2)		All new mothers with OUD should receive lower postpartum psychosocial services. The psychosocial services should last for a period of 5 years. Estimate provided by Dr. Nancy Young.
[5] = [3] * 40%	40%	Housing services should be provided for a minimum of 12 months. Informed by (1) Brogly SB, Saia SK, Kelley E, Werler M, Regan E, Hernández-Díaz S. Prenatal Treatment and Outcomes of Women with Opioid Use Disorder. Obstetrics & Gynecology. 2018;132(4):916-922. (2) Estimate provided by Dr. Nancy Young.
[6] = [1] * 62.3 per 1,000 * [12]	62.3	Number of hospital live births in Cabell County * NAS incidence per 1,000 births. 2017 data. All infants born with NAS should receive comprehensive medical care. (1) West Virginia Department of Health & Human Resources, Bureau for Public Health. Percent of Neonatal Abstinence Syndrome (NAS). <a href="https://dhhr.wv.gov/bph/Documents/ODCP%20Reports%202017/NAS%20DATA%202017.pdf">https://dhhr.wv.gov/bph/Documents/ODCP%20Reports%202017/NAS%20DATA%202017.pdf</a> . (2) Estimate provided by Dr. Nancy Young.
[7] = ([1] * 17.6% * [12]) - [6]	17.6%	Proportion of umbilical cords testing positive for opiates at Cabell Huntington Hospital. MOMS Program: Maternal Opiate Medical Support. HUNT_00092810.
[8] = [6] + ([7] * 84.0%)	84.0%	Proportion of infants exposed to opioids but not diagnosed with NAS who should receive early intervention (age 0-5 years old). All infants diagnosed with NAS should receive early intervention (age 0-5 years old). Estimate provided by Dr. Nancy Young.
[9] Cumulative sum of [8] until age 6 years old		Number of all infants diagnoses with NAS is used as a proxy for the number of infants exposed to opioids in utero but not diagnosed with NAS and number of infants diagnosed with NAS who need early intervention. Expert opinion.
[10] = [6] * 19.3% starting at age 6 years old	19.3%	Infants with NAS require special services and education starting at age 6 years old. (1) Estimate provided by Dr. Nancy Young. (2) Informed by Fill MM, Miller AM, Wilkinson RH, Warren MD, Dunn JR, Schaffner W, Jones TF. Educational Disabilities Among Children Born With Neonatal Abstinence Syndrome. Pediatrics. 2018;142:e20180562.
[11] Cumulative sum of [10] starting at age 6 years old		
[12] Retrieved from "Abatement Scaling" tab		
<b>Costs Description</b>		
[1] Prenatal screening cost per woman		
[3] Prenatal psychosocial services cost per woman		
[4] Postpartum psychosocial services cost per woman		
[5] Housing services cost per mother		
[6] NAS medical costs per infant		
[9] Early intervention cost per child (age 0-5 years old)		
[8] Special education and psychosocial services cost per child (age 6-21 years old)		
<b>Suggested Costs</b>	<b>Value</b>	<b>Source(s)</b>
Prenatal screening cost per woman	\$77.10	2020 cost. Includes presumptive drug testing by instrumented chemistry analyzers (CPT Code 80307) and office/outpatient visit (CPT Code 99211). (1) West Virginia Department of Health and Human Resources, Bureau of Medical Services. Clinical Lab Fee Schedule. Effective April 1, 2020. <a href="https://dhhr.wv.gov/bms/FEES/Pages/Clinical-Diagnostic-Lab-Fee-Schedules.aspx">https://dhhr.wv.gov/bms/FEES/Pages/Clinical-Diagnostic-Lab-Fee-Schedules.aspx</a> . (2) Center for Medicare and Medicaid Services. Physician Fee Schedule Search. Updated April 3, 2020. <a href="https://www.cms.gov/apps/physician-fee-schedule/search/search-results.aspx?Y=0&amp;T=0&amp;HT=0&amp;CT=2&amp;H1=96372&amp;C=89&amp;M=1">https://www.cms.gov/apps/physician-fee-schedule/search/search-results.aspx?Y=0&amp;T=0&amp;HT=0&amp;CT=2&amp;H1=96372&amp;C=89&amp;M=1</a> .
<b>NAS medical costs per infant</b>		
Source #1	\$23,106	2015 cost. Loudin S, Werthammer J, Prunty L, Murray S, Shapiro JI, Davies TH. A Management Strategy That Reduces NICU Admissions and Decreases Charges From the Front Line of the Neonatal Abstinence Syndrome Epidemic. Journal of Perinatology. 2017;37:1108-11.
Source #2	\$24,341	2016 cost. NAS hospitalization (ICD-10 Code P96.1 neonatal withdrawal symptoms from maternal use of drugs of addiction). U.S. Department of Health & Human Services, Agency for Healthcare Research and Quality. HCUPNet. <a href="https://hcupnet.ahrq.gov/#query/eyJBTkFMWVNUJ19UWVBFJljbklFUX00iXSwiT1VUQ09NRV9NRUFTVVJFuyI6WyJPTV9OVU1CRViIlCJPTV9SQVRFlwiT01fTG9TliwiT01fSENliwiT01fSENPlwiT01fQUNliwiT01fQUNPli0sIlFQVJTIjpbIlISXzlwMTYiXSwiUFJlTknJUEXFX09SX0FMTCi6WyJQQV9QUkIQ0IQlTEUiXSwiQ0FURUdPUklaQVRJbT05VFV0RSi6WyJVFV9JQ0QxMEQiXSwiQ1RfSUNEMTBEljpbjI3MjU2Ii0sIkRBEVFRVRfU09UkNFjpbklRTX05JyJdfQ==">https://hcupnet.ahrq.gov/#query/eyJBTkFMWVNUJ19UWVBFJljbklFUX00iXSwiT1VUQ09NRV9NRUFTVVJFuyI6WyJPTV9OVU1CRViIlCJPTV9SQVRFlwiT01fTG9TliwiT01fSENliwiT01fSENPlwiT01fQUNliwiT01fQUNPli0sIlFQVJTIjpbIlISXzlwMTYiXSwiUFJlTknJUEXFX09SX0FMTCi6WyJQQV9QUkIQ0IQlTEUiXSwiQ0FURUdPUklaQVRJbT05VFV0RSi6WyJVFV9JQ0QxMEQiXSwiQ1RfSUNEMTBEljpbjI3MjU2Ii0sIkRBEVFRVRfU09UkNFjpbklRTX05JyJdfQ==</a> .
Source #3	\$37,584	2016 cost. Milliren CE, Gupta M, Graham DA, Melvin P, Jorina M, Ozonoff A. Hospital Variation in Neonatal Abstinence Syndrome Incidence, Treatment Modalities, Resource Use, and Costs Across Pediatric Hospitals in the United States, 2013 to 2016. Hospital Pediatrics. 2018;8:15-20.